The Success of PA 295

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- **Non-profit Advocacy Organization launched in 2001** to overcome the barriers to bringing wind power to market in the Midwest.
- **Members** include non-profit environmental organizations, American Indian tribal representatives, wind developers and manufacturers, American Wind Energy Association, businesses that provide goods and services to the wind industry.
- **Work in 3 areas**:
  - Technical–work with electric utilities and Midwest Independent System Operator (MISO – regional "grid" operator) on transmission planning for wind, market and operational rules that treat wind fairly
  - Regulatory–actively participate in cases where states are approving new transmission lines that will access wind power
  - Policy education/outreach/advocacy–work with governors, state regulators, legislators, local elected officials, regional groups, colleague organizations, general public on wind and transmission issues
- **Support** – Foundation grants and member contributions

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RPS has been a success for Michigan

- Michigan has seen an increased usage of renewable resources --
  - – that has brought new manufacturing companies into the State,
  - – brought economic development and investment, and is
  - – being implemented at a cost well below the cost of building new conventional coal plants

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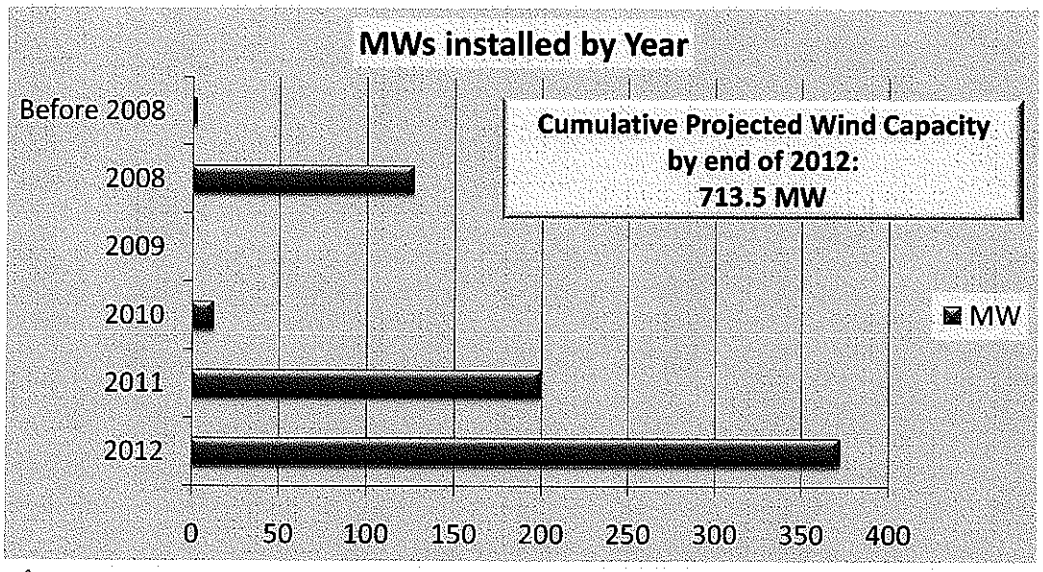
Wind Energy Growth in Michigan



Sources: AWEA 2010 Annual Report and Michigan PSC Report on Implementation of PA 295 Renewable Energy Standard and the Cost Effectiveness of the Energy Standards , App. F.

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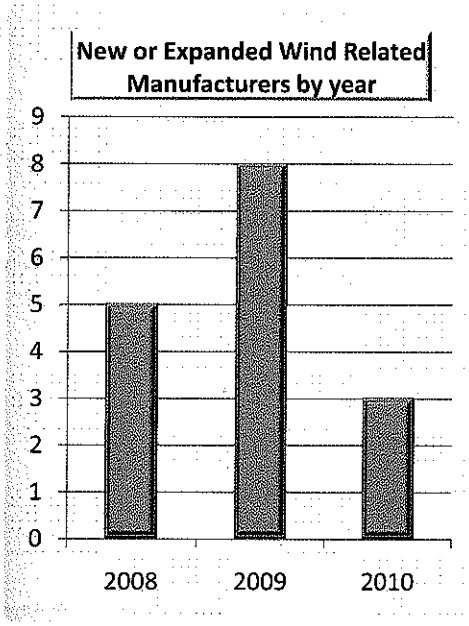
Wind Related Manufacturers in Michigan

Manufacturing Growth by year:

- 2008
  - ATI Casting Service: Alpena, MI (Castings)
  - ETM Enterprises: Lansing, MI (Composite Structures)
  - Danotek: Ann Arbor, MI (Generators)
  - Genzink Steel: Holland, MI (Frames)
  - K&M Machine Fabricating: Cassopolis, MI (Hubs and gearbox housings)
- 2009
  - Danotek: Canton, MI (Generators)
  - Mariah Power: Manistee, MI (Small Turbines)
  - GE: Detroit, MI (R&D)
  - Windtronics: Muskegon, MI (Small turbines)
  - Affordable Green Energy: Essexville, MI (Small Turbines) (Expansion)
  - Bay Composites: Essexville, MI (components) (Expansion)
  - Johnson System Inc: Marshall, MI (Components) (Expansion)
  - Three M Tool: Wixom, MI (castings) (Expansion)
- 2010
  - Ventower: Monroe, MI (Towers)
  - Dokka: Auburn Hills, MI (Fasteners)
  - URV USA: Rocherster, MI (Castings)



Sources: AWEA Annual Reports for 2008 through 2010.

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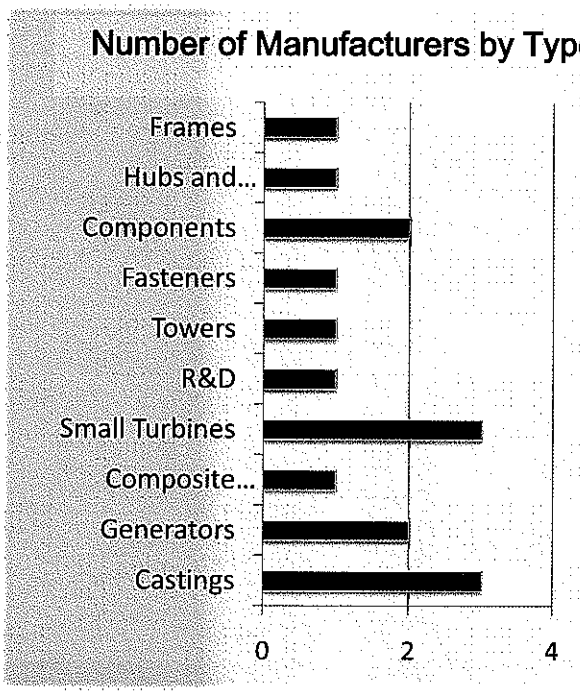
2008-2010 Manufacturing Growth by Type

Towers: Ventower: Monroe, MI
R&D: GE: Detroit, MI
Small Turbines: Mariah Power: Manistee, MI
Windtronics: Muskegon, MI
Affordable Green Energy: Essexville, MI
Composite Structures: ETM Enterprises: Lansing, MI
Generators: Danotek: Canton, MI
Danotek: Ann Arbor, MI
Castings: ATI Casting Service: Alpena, MI
URV USA: Rochester, MI
Three M Tool: Wixom, MI
Fasteners: Dokka: Auburn Hills, MI
Components: Bay Composites: Essexville, MI; Johnson System Inc: Marshall, MI
Hubs and gearbox Housing: K&M Machine Fabricating: Cassopolis, MI
Frames: Genzink Steel: Holland, MI



Sources: AWEA Annual Reports for 2008 through 2010.

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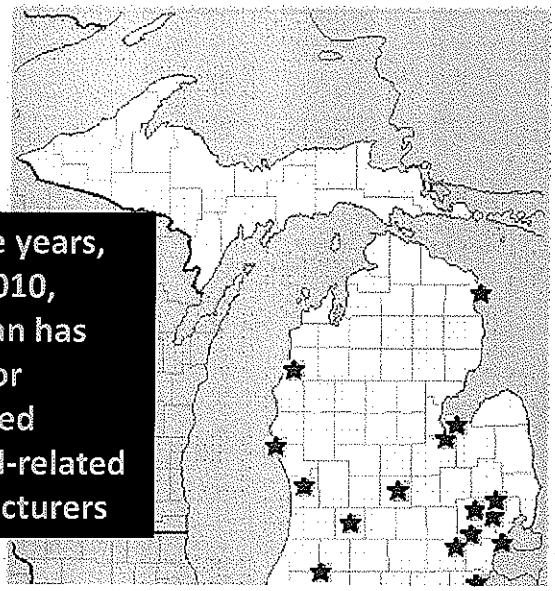
Manufacturer Growth 2008-2010



In three years, 2008-2010, Michigan has added or expanded 16 wind-related manufacturers

Michigan has a total of 31 operating utility-scale, wind-related manufacturing plants, with at least 6 more announced. These plants help support the 3000-4000 jobs provided by the wind industry throughout Michigan. (AWEA-Michigan Fact Sheet)

Michigan is home to nearly 200 solar and wind supply chain companies (over 50 of which supply to both industries) with more than 4,000 jobs tied to the wind industry and 6,300 to the solar industry. (Solar and Wind Industry Supply Chain in Michigan, ELPC (3/2011))

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Economic Benefits over Next 20 Years from 713 MWs of Wind Development

Economic Benefits

	Windfarms Built To Date	Windfarms to be Built in 2012
Direct impacts	341 MW	372 MW
Total Construction ($)	$11,750,000.00	$12,750,000
Operation & Maintenance ($/year)	$1,900,000	$2,100,000
Indirect and induced impacts		
Total Construction ($)	$197,750,000	$215,750,000
Operation & Maintenance ($/year)	$9,000,000	$10,000,000
Property Taxes ($/ year)	$2,800,000	$3,000,000
Land Lease Payments ($/year)	$1,000,000	$1,100,000
TOTAL ECONOMIC BENEFITS Over 20 YEARS	$503,500,000	$552,500,000

Job Data

	Windfarms Built To Date	Windfarms to be Built in 2012
	341 MW	372 MW
Construction		
DIRECT JOBS	400	450
DIRECT PAYROLL ($)	$23,256,000	$26,399,700
TURBINE & SUPPLY CHAIN JOBS	1080	1125
INDUCED JOBS	340	350
Operation & Maintenance		
DIRECT JOBS (per year)	34	37
LOCAL REVENUE & SUPPLY CHAIN (per year)	24	25
INDUCED JOBS (per year)	22	28
PAYROLL ($ / year)	$4,000,000	$4,350,000

Calculated using US Dept. of Energy's *Jobs and Economic Development (JEDI) Model.* A developer provided data regarding number of direct construction jobs and property taxes. The remaining data comes from database associated with JEDI model.

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Environmental Benefits of Wind Energy

Reduced Water Usage and Carbon Emissions

	Savings from a Typical Pulverized Coal Plant	
	End of 2012	20% of 2009 Retail Sales of
Estimated Wind Generation Capacity (MW)	714	
Energy Avoided by Renewable Energy Resources (MWh)	2,062,586	19,320,000
Emissions Savings:		
CO2 (lbs)	3,766,281,671	35,278,320,000
NOX (lbs)	9,487,895	88,872,000
SO2 (lbs)	2,681,362	25,116,000
Nitrous Oxide (lbs)	268,136	2,511,600
Water Conservation (gallons):	1,010,667,042	9,466,800,000

- Reducing emissions by 35B pounds of carbon is like removing 2.9M cars from the road or planting 14M acres of trees.
- Conserving 9.5B gallons of water is equal to the daily consumption of nearly 54M people.

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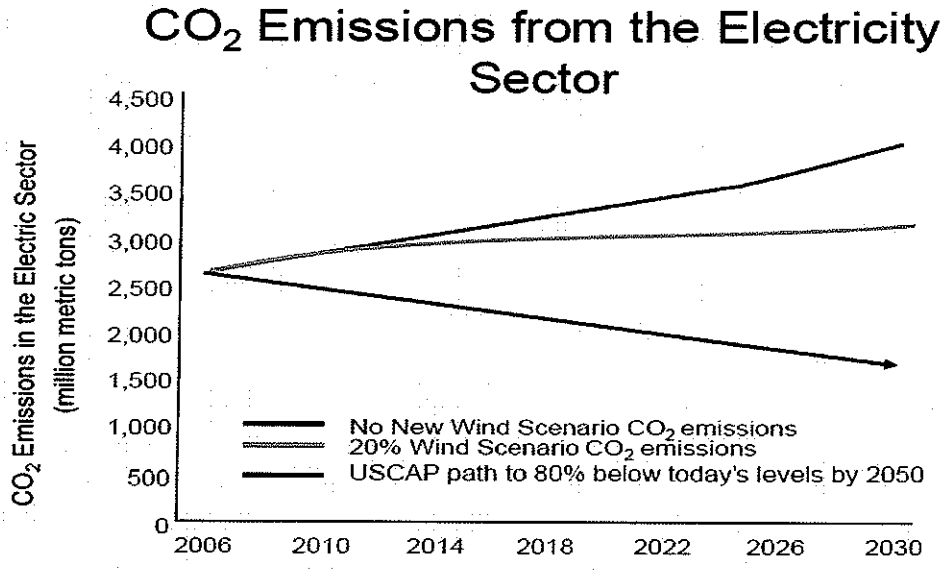
20% RPS Nearly Offsets Carbon Emissions



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Room for Growth of RPS

Michigan Retail Sales in 2009 ≈ 96,600,000 MWhs
10% by 2015 is ≈ 9,660,000 MWhs
20% of Current Retail Sales is ≈ 19,320,000 MWhs

Estimated Minimum and Maximum Number of Turbines, Capacity, and Annual Energy Production, by Identified Region

		Minimum			Maximum		
Region	Counties	Number of turbines	Capacity (MW)	Annual energy potential (MWh)	Number of turbines	Capacity (MW)	Annual energy potential (MWh)
1	Allegan	166	249	747,938	296	445	1,338,415
2	Antrim Charlevoix	102	153	439,555	183	274	786,572
3	Benzie Leelanau Manistee	435	652	1,991,679	778	1,167	3,564,058
4	Huron Bay Saginaw Sanilac Tuscola	1,578	2,367	6,723,472	2,824	4,236	12,031,477
TOTAL		2,281	3,421	**9,902,644 MWh**	4,081	6,122	**17,720,522 MWh**

SOURCE: Research and findings from Michigan State University Land Policy Institute, 2009, prepared for WERZ Board.

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Thank you

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